



Analog and Mixed-Signal Fact Sheet

# MC33811

## Solenoid monitor integrated circuit (IC)

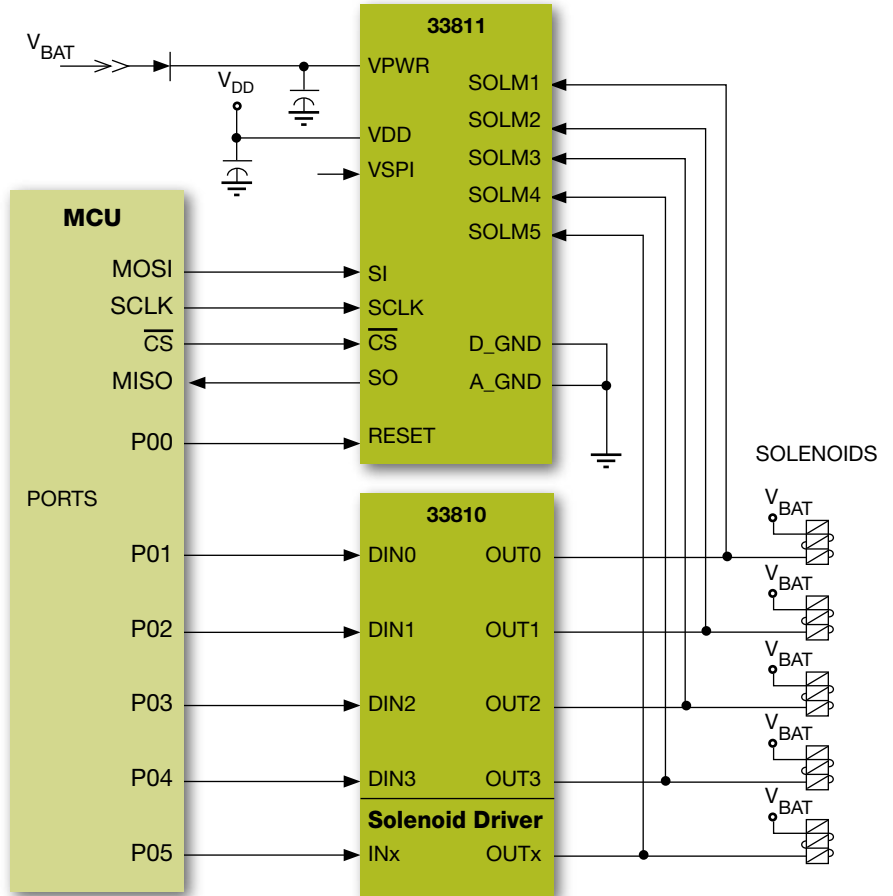
**Applications**

- Engine control
- Transmission control
- Industrial control valve actuators

**Overview**

Engine control module developers need reliable solutions. These solutions help reduce component count and development time and provide diagnostics to help with protection for the various loads in gasoline and diesel engines. Freescale's MC33811 is a five channel solenoid monitor integrated circuit (IC) that is designed to make the determination on the correct operation of a solenoid. The MC33811 determines whether there is a problem with a solenoid opening and closing by monitoring the profile of the solenoid's current waveform. A simple SPI message tells the MCU if the solenoid actuation has been successful or if a fault has occurred.

**MC33811 Simplified Application Drawing**



The MC33811 device provides important diagnostic information before significant engine damage occurs due to solenoid malfunctions. Automotive applications include control valve actuators, injectors and other mechanical system controllers where solenoid operation occurs. These features make the MC33811 ideal for power train solenoid monitoring applications.

### Features

- Unique solenoid current profile detection circuitry
- Interfaces directly to MCU using 3.3–5.5V SPI protocol
- Internal voltage regulator
- Internal oscillator

### Benefits

- Highly integrated solution minimizes need for additional external discrete components
- Provides diagnostic information
- Small footprint, reduces printed circuit board area
- Simple interface to microprocessor

Freescale Semiconductor is a leading provider for over 25 years of high-performance products that use SMARTMOST™ technology that combines digital, power and standard analog functions. The company supplies analog and power management ICs for the automotive, consumer, networking and industrial markets. Freescale's analog and power ICs complement our broad portfolio of microcontrollers, microprocessors, ZigBee® technology, digital signal processors, sensors, development tools and support to offer system solutions to customers.

### Orderable Part

Part Number	Temp. Ranges (T <sub>A</sub> )	Package
MCZ33811EG/R2	-40°C to +125°C	16-PIN SOICW

### Parametric Table

Performance	Typical Values
Operating voltage	10.5–15.5V
Control/Communication	SPI and reset
Solenoid monitoring voltage	64V <sub>DC</sub> (max)

### Development Tools

Part Number	Description
KIT33811EGEVME	Evaluation board to demonstrate the key features of MC33811

### Documentation

Freescle Document Number	Title	Description
MC33811	Data Sheet	Presents the specifications for this product
SG1002	Selector Guide	Analog and power management device comparison
SG187	Selector Guide	Automotive device comparison
AN2409	Application note	Small Outline Integrated Circuit (SOIC) Fine Pitch Package



**EG SUFFIX (Pb-FREE)**

**98ASB42567B**

**16-PIN SOICW**

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